

Annual Report of Chief Engineer State Highway Department

1926

Dover, Del.
December 31, 1926

To the Members
State Highway Department,
Sirs:

I have the honor to submit the 1926 annual report of the State Highway Department, which it has been my privilege to prepare for your esteemed consideration. A perusal of its contents, will disclose a resume of the accomplishments of the Department over the year just ended, accompanied by individual recommendations within the scope and duties of the said Department.

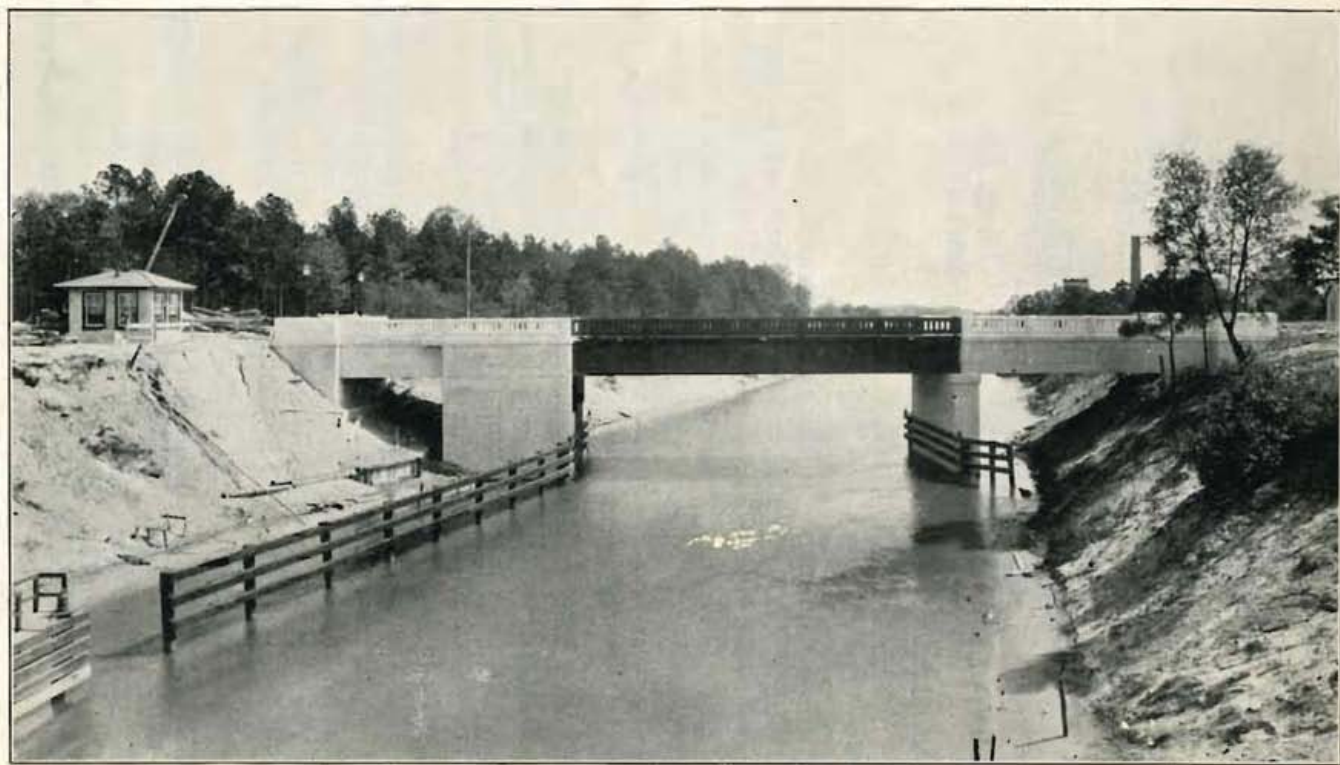
SURVEYS AND PLANS Surveys obtained during the year by two full-time parties, included 138 miles of preliminary road surveys, 83 miles of construction surveys and 85 miles of final surveys, besides miscellaneous surveys for right-of-way purposes.

The office has prepared detailed plans and estimates for 86 miles of roadway, besides platting, planimentering and figuring quantities for 85 miles of final cross sections.

The extent of the operations for the year, of the Division of Surveys and Plans is fully compiled in the summary attached.

BRIDGES AND CULVERTS The work devoted by the Department during the year to the design and construction of state bridges, has been unequalled since its inception, in the magnitude of the responsibilities attending it.

The building of three important bascule bridges has held



ROLLING LIFT BASCUE BRIDGE OVER LEWES-REHOBOTH CANAL NEAR REHOBOTH COMPLETED 1926

Federal Aid Proj. No.	Contract Number	LOCATION	FIELD WORK—MILES					
			Preliminary Base Line	Preliminary Detail	Location Base Line	Location Detail	Cross Sections	Staking Out
31	CS45	Laurel to Sharptown .....	.....	.....	.....	.....	.670	7.934
35	CN32	Guns Corner to Middletown .....	.....	.....	.....	.....	.....	3.854
	CK25	Md. Line to Kenton .....	.....	.....	.....	.....	.....	.....
	CN19C	Summit Bridge Approach .....	.....	.....	.....	.....	.....	.....
	CN19B	Iams Pond Surfacing .....	.....	.....	.....	.....	.....	.....
	CS41	Bethany Beach .....	.....	.....	.....	.....	.....	.....
	CK28	Md. Line to Willow Grove .....	.....	.....	.....	.....	.....	.....
32	CS47	Little Creek to Leipsic	6.617	6.617	2.031	.....	1.989	.....
	CS37	Milton to Waples Mill .....	.....	.....	.448	.448	.448	2.498
29	CN27	Harmon School to Oak Orchard .....	.....	.....	.....	.....	.....	.....
	CS48	Christiana to Newark .....	.....	.....	.....	.....	.....	.....
	CK31	Greenwood to Owens Sta. ....	.....	.....	3.499	3.499	3.201	3.201
		Rising Sun to Lebanon	1.299	1.272	.546	.....	1.255	1.255
33	CK32	Rogers Cor. Cut-Off .....	.921	.928	.714	.714	.920	.758
	CS14	Wyoming to County Farm	3.270	.549	3.638	2.397	6.891	.....
	CN30	Du Pont Road to Stockley .....	.....	.....	.....	.....	.....	.....
34	CS49	Richardson Park to Elsmere	1.832	1.832	1.080	.....	1.080	1.080
		Gumboro to Md. Line	3.348	3.348	.....	.....	3.348	3.347
		Du Pont Road to Lebanon	1.082	1.082	.....	.....	.....	.....
		Wilmington Causeway .....	.445	.445	.....	.....	.445	.....
		Harmon School to Midway	11.407	.....	.....	.....	.....	.....
		Benson's Corner to Hazletville Road	1.256	1.256	.....	.....	.....	.....
	CK34	Thru Dover (Governor's Ave.)	3.484	3.525	1.906	.251	.....	.....
	CS51	Smyrna to Wendall's Cor.	3.587	3.586	3.448	.....	3.390	1.914
	56	Delmar Toward Columbia	4.281	3.741	.....	.....	4.129	3.129
	67	Widening Plue Tree to Odessa .....	.....	.....	.....	.....	.....	.....
	58	Elliott's R.R. Crossing Elimination (Bridgeville) .....	.....	.....	.....	.....	.379	.379
	CS38	Bear R. R. Crossing Elimination .....	.....	.....	.248	.....	.248	.248
	CS39	Vines Creek to St. Georges Church .....	.....	.....	.....	.....	.....	.....
	CS50	Waples Mill to Brick Granary .....	.....	.....	.....	.....	.....	.....
36		Hardscrabble to Concord .....	.....	.....	4.967	4.967	4.967	4.967
	62	White Oak Road Extension	1.636	1.637	.....	.....	1.636	1.636
	63	Laurel Road to Guns "X" Road .....	.....	.....	2.323	1.297	2.323	2.323
	CK29	Thompsonville to Du Pont Road .....	.....	.....	.....	.....	.....	.....
	CN29	Mermaid to Milford "X" Roads .....	.....	.....	3.582	1.261	3.579	2.897
	CK26	Canterbury to Magnolia .....	.....	.....	1.245	.....	1.174	5.310
	CK30	Md. Line to Hartley .....	.....	.....	.....	.....	.....	.....
	64	Heald St. Cut-Off .....	.572	.573	.996	.445	1.003	.996
	CS52	Seaford Cut-Off .....	.873	.873	.....	.....	.878	.878
	65	Kitt's Hammock Road	3.360	3.362	.....	.....	3.134	3.134
	CK11	Blackiston to Clayton .....	.....	.....	.....	.....	.....	.....
	53	Five Points to Waples Mill .....	.....	.....	.....	.....	.....	.....
	CN19D	Summit Bridge App. Surfacing .....	.....	.....	.....	.....	.344	.473
	CS54	Harbeson to Fairmount .....	.....	.....	4.705	4.716	4.716	4.716
	68	Cedar Neck School Toward Milford	2.146	2.159	.....	.....	2.159	2.159
CS56 & 74		Greenwood to Hickman	7.193	7.193	8.003	2.875	8.003	.....
	CN31	New Castle to Wilmington .....	.....	.....	3.259	.153	4.373	3.259
	CS46	Cannon to Atlanta .....	.....	.....	.....	.....	.....	.....
	CS55	Selbyville to Williamsville .....	.....	.....	6.343	6.338	6.341	6.341
	CN33	Townsend to Dexters Cor. ....	.....	.....	4.221	.....	4.221	4.221
	CS39C	Rehoboth Connection .....	.....	.....	.....	.....	.....	.....
	CN28	Point Breeze School to Faulk Road .....	.....	.....	.....	.....	.....	.....
		Burnites Mill to Mastens Cor.	2.273	2.286	.....	.....	2.292	.....
	69	Burnites Mill and Blackswamp School to Warrens School	4.669	4.455	.....	.....	4.424	2.397
	CK33	Thru Farmington .....	.....	.....	.....	.....	.....	.....
	69	Harrington to Mastens Corner	3.381	3.381	.....	.....	3.381	3.381
	CS53	Lewes to Bay Shore .....	.....	.....	.....	.....	.....	.503
	70	Dikton Road to Pleasant Valley School	1.489	1.496	.....	.....	1.594	1.496
	CN24	Grubs Cor. to Hanbys Cor. ....	.....	.....	.....	.....	.....	.....
		Flowers Sta. to Md. Line .....	.....	3.977	3.994	.....	.....	.....
	73	Vance's Neck Road	2.630	.....	.....	2.630	2.630	2.630
	CS42	Mission to Lewes "X" Road .....	.....	.....	.....	.....	.....	.....
		Thru Dover (East Route)	1.174	1.174	.....	.....	.....	.....
		TOTALS	78.008	60.564	57.802	31.921	92.075	83.914

OFFICE WORK—MILES

Index Maps	Preliminary Line and Detail	Location Line	Location Detail	Profile	"X" Sections	Grade	Earthwork	Tracing	FIELD AND OFFICE Final "X" Sections	FIELD AND OFFICE Borrow Pits
									Miles	
6.970	.....	.....	.....	.....	.....	.....	.....	.....	7.938	6
.....	.....	3.047	.....	3.028	3.854	3.892	3.854	3.854	5.980	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.417	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.251	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	1.410	2
.....	.....	.....	.....	.....	.....	.....	.....	.....	7.057	2
6.617	6.617	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.448	.448	.486	.448	.486	.448	.418	2.472	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	2.000	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	4.862	2
3.499	.....	3.499	3.499	3.277	3.201	3.277	3.201	3.314	3.295	4
1.290	1.272	.546	.....	1.326	1.255	1.326	1.255	1.299	1.299	1
.928	.928	.711	.714	.758	.920	.758	.739	.928	.....	.....
2.427	1.951	2.571	1.720	2.509	5.824	2.413	2.427	2.431	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	1.108	2
1.832	1.832	1.680	.....	1.680	1.680	1.680	1.680	1.832	.....	1
3.348	3.348	.....	.....	3.447	3.348	3.371	3.348	3.347	3.352	5
1.062	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.445	.445	.....	.....	.....	.445	.....	.....	.....	.....	.....
11.407	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1.256	1.256	.....	.....	.....	.....	.....	.....	.....	.....	.....
3.525	3.525	1.906	.251	.....	.....	.....	.....	2.107	.....	.....
3.887	3.248	3.418	.....	2.008	3.390	1.979	1.914	1.965	1.914	1
4.283	4.283	.....	.....	4.252	4.129	4.252	4.129	4.112	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	3.660	.....	.....
.....	1.161	.....	.....	.398	.379	.398	.379	.478	.....	.....
.....	.....	.248	.....	.379	.248	.322	.248	.379	.313	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	3.030	3
.....	.....	.....	.....	.....	.....	.....	.....	.....	5.580	8
4.967	.....	4.967	4.967	5.021	4.967	5.021	4.967	4.967	.....	.....
1.636	1.636	.....	.....	1.682	1.636	1.682	1.636	1.636	1.621	.....
.....	.....	2.323	.....	2.358	2.323	2.358	2.323	2.323	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	3.663	2
3.582	.....	3.582	1.201	3.579	3.579	3.579	3.579	3.582	.....	.....
.....	.....	1.245	.....	1.136	1.136	1.136	1.136	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	2.602	.....
.573	.573	.996	.445	1.042	1.003	1.042	1.003	.996	.720	3
.873	.873	.....	.....	.947	.878	.909	.878	.873	.....	.....
3.362	3.362	.....	.....	3.617	3.134	3.314	3.134	3.362	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	3.720	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	8.718	8
.....	.....	.....	.....	.417	.344	.417	.473	.644	.644	1
4.716	.....	4.705	4.716	4.773	4.716	4.773	4.716	4.716	.....	.....
2.159	2.159	.....	.....	2.159	2.159	2.159	2.159	2.159	2.128	2
7.103	.....	8.003	7.100	7.100	8.003	7.100	7.100	7.100	.....	.....
.....	.....	3.259	.153	3.259	6.606	3.259	3.259	3.259	.....	7
.....	.....	.....	.....	.....	.....	.....	.....	.....	2.121	1
2.153	2.153	4.190	4.205	6.433	6.341	6.433	6.341	6.343	.....	.....
.....	.....	4.221	.....	4.261	4.221	4.261	.....	.....	.....	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.883	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	1.487	1
2.286	.....	.....	.....	.....	2.292	.....	.....	.....	.....	.....
.....
4.669	3.230	.....	.....	2.430	2.430	2.430	2.430	2.397	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	1.293	.....
3.381	3.381	.....	.....	3.381	3.381	3.381	3.381	3.381	.....	.....
.503	.....	.....	.....	.....	.....	.....	.....	.....	.503	.....
1.496	1.504	.....	.....	1.496	1.496	1.496	1.496	1.504	.....	3
.....	.....	.....	.....	.....	.....	.....	.....	.....	.795	1
.....
2.630	2.630	.....	.....	2.630	2.630	1.990	1.894	2.630	.....	3
.....	.....	.....	.....	.....	.....	.....	.....	.....	2.894	.....
2.543	.....	.....	.....	.....	.....	.....	.....	.....	.....	7
101.027	50.367	55.595	29.479	82.160	93.060	80.894	79.786	86.212	85.120	81

the attention of our bridge engineers since a year ago. The bascule span at Rehoboth begun in 1925 was opened to traffic on May 23rd. The Broadkill River Crossing is 50% completed and should be in operation before June. Work on the South Market Street Bridge, in Wilmington, was begun last month and satisfactory progress is being made. No effort will be spared to complete this structure in record time and barring unforeseen difficulties, the new bridge will be in use on or before November next.

I desire at this period of the building of the Market Street Bridge to make note in this official record, of the likelihood of the final cost of this work, exceeding the estimated cost by as much as 8%. This statement is based on the possibility of having to sink the foundations for the bascule piers below the elevation estimated (-31), if the foundation material encountered at that depth is unsuitable.

In conjunction with the undertakings above noted, the Division designed 23 fixed highway bridges of spans between 6 feet and 34 feet, and in addition, selected and located suitable pipes for 258 culverts.

The years drainage structures exclusive of the movable spans entailed an expenditure of \$130,000, of this amount \$80,000 was spent on bridges and \$50,500 for culverts.

TESTING In the effort to determine which of the **LABORATORY** many materials submitted from various sources for use by the Department were satisfactory, our laboratory enjoyed a busy year.

During 1926 more than 7000 specimens were tested, the number approximating that of previous years while the cost was less than a quarter of 1% of the cost of highway construction.

Slag, Stone, Sand, Water, Cement, Gravel, Reinforced Concrete Pipe, Steel, Concrete and Stone Dust were tested in the State laboratory, samples being obtained from materials at the site of the contracts or at point of production. A new material of volcanic origin, named Trass, is also being studied.

As in previous years, a commercial testing laboratory was employed to sample at point of shipment and test cement and hydrated lime, its activities now being extended to include



PROPOSED BASCULE BRIDGE OVER THE CHRISTIANA RIVER AT
MARKET STREET, WILMINGTON, NOW UNDER CON-
STRUCTION AND TO BE COMPLETED DURING 1927



CORE DRILLING OUTFIT LOANED BY U. S.
BUREAU OF PUBLIC ROADS FOR MAKING
TESTS OF THICKNESS AND STRENGTH
OF DELAWARE HIGHWAYS



CORES DRILLED FROM STATE HIGHWAY. 70 PER CENT
OF THESE CORES SHOWED A THICKNESS OF ONE-
HALF INCH OR MORE ABOVE CONTRACT THICKNESS

asphalt, a material more extensively used this year than heretofore.

RIGHT OF WAY During the year new rights of way were secured on 28 contracts, totalling 77.43 miles at a cost of \$47,341.79. This work necessitated the writing of 588 descriptions, the securing of 499 options and the execution of 372 deeds and 173 releases. The total cost as given includes costs and salaries in connection with securing options, preparation of descriptions, preparation, execution, and recording of deeds and releases, the cost of resetting and erecting fences, moving buildings, digging new wells, land and crop damages, and other expenses made necessary by the widening and realignment of the new roads. Buildings were moved on 33 properties. It was necessary to condemn 17 properties at a total award of \$4,853.10. Nine of the 17 property owners received the minimum award of six cents.

The average cost per mile of right of way for the year, was \$611.41. This is the best record yet obtained and is significant of keen bargaining and close application by the engineers of the Division, to the arduous work the business entails.

The Department acknowledges with appreciation the assistance rendered by many citizens, in securing rights of way and when acting as witnesses in condemnation proceedings.

CONSTRUCTION During the year, 38 construction projects were advertised and awarded of which 35 were road contracts totaling 91.95 miles and 3 bridge contracts. The total estimated cost of the work was \$2,429,233.56, of this amount \$1,959,909.04 was for road construction.

Types of roads for which contracts were awarded included 46.64 miles of concrete, 10.97 miles of sand asphalt, .8 mile of Amiesite resurfacing, 22.87 miles of slag clay secondary roads, and 10.67 miles of concrete widening to present pavements.

In addition to this year's awards, there was carried forward from last year, 19.15 miles into this year's working season, making a total of 110.1 miles under construction. To date 94½ miles have been completed and opened to traffic, the remaining 16½ miles will be built in 1927; when the state's system will total 592 miles or 16½% of the entire road mileage in the state.

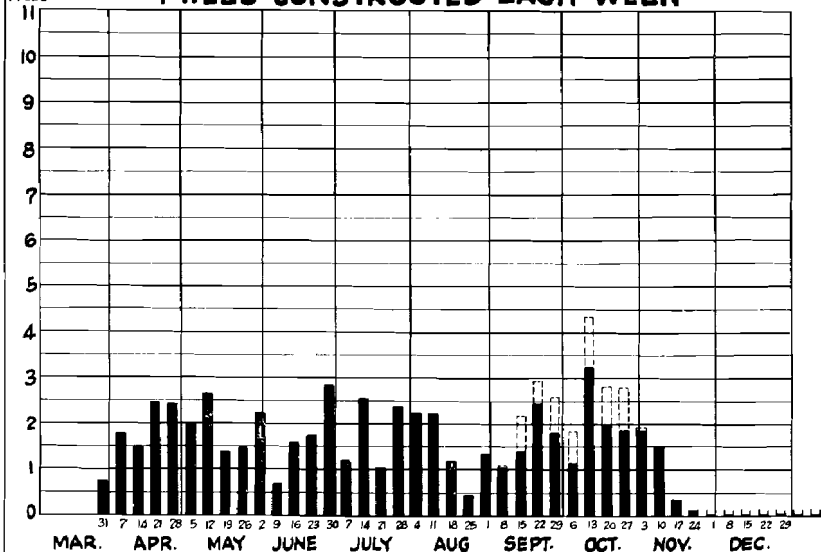
STATE OF DELAWARE
STATE HIGHWAY DEPARTMENT
CONCRETE ROADWAY PROGRESS SHEET

WEEK ENDING WEDNESDAY

1926

MILES

MILES CONSTRUCTED EACH WEEK



* TOTALS ARE FOR CONCRETE ROADWAY ONLY. DOES NOT INCLUDE
5.8 MI. OF SAND ASPHALT AND 19.3 MI. OF SLAG CLAY ROADS

Eleven lettings were held during the year, the first on March 10th and the last December 1st. Active construction began the last week in March and reached its peak during the last week in June when 2.86 miles of concrete were laid. A week's record of one mixer was 5656 feet, the best day's run 1135 feet. Surfacing of the Laurel-Sharptown road. 7.93 miles in length was completed in 51 working days.

Two new types of construction were built during 1926, Sand Asphalt and Slag-Clay roads. The former was constructed in Sussex County to take advantage of the local sand and of the 10.87 miles contracted for, approximately 6 miles were completed with altogether satisfactory results. This type of road is cheaper than concrete and has the added advantage of caring for traffic the day after it is laid. As yet we have no figures with which to compare the maintenance cost of sand asphalt roads with those of concrete.

Slag-clay construction was used on roads of secondary nature and experiments were carried on in its use in the attempt to secure a road to serve the public at a reduced cost. Of the 22.87 miles of this type awarded, 19.4 miles were completed. Oil treatment was tried out on 2.3 miles with only fair results. The advisability of building more roads of this type is questionable.

Following is a tabulation of contracts, their mileage and cost, awarded in 1926:

TABULATION OF ROAD CONSTRUCTION CONTRACTS A

Contract No.	Location	Length (Miles)	Contractor	
56	Pine Tree-Odessa Wdng.	3.66	F. W. Lovett, Newark, Del.	4
CN24	Grubbs Cor.-Hanby Cor. ....	.81	Juniata Company, Philadelphia, Pa.	16
58	Bear RR "X"ing Elimination ....	.28	Stewart & Donohue, Wilmington, Del.	15
CN32	Glins Cor.-Middletown	3.85	Stewart & Donohue, Wilmington, Del.	16
CN19D	Sunmit Bridge Appr. ....	.40	F. W. Lovett, Newark, Del.	16
64	Rogers Corner Cutoff ....	.73	D. E. O'Connell & Sons, Ridley Park	20
66	Kennett Pike Drainage		Wm. Francis & Co., Wilmington, Del.	Sp
CN29	Mermaid-Milford "X" Roads	3.55	D. E. O'Connell & Sons, Ridley Park	16
CN31	New Castle-Wilmington	2.69	Stewart & Donohue, Wilmington, Del.	18
CN33	Townsend-Dexter's Cor.	4.20	Kirk Bros., Upper Da by, Pa.	12
CN30	Richardson Park-Lancaster Pk.	1.68	W. W. Truitt, Lincoln City, Del.	16
CN31A	Rogers Cor.-Eden Park ....	.80	F. W. Lovett, Newark, Del.	16
70	Elkton Road-Pleasant Valley S.	1.49	Sutton Constr. Co., Philadelphia, Pa.	12
73	Vances Neck Road	2.6	George & Lynch, Dover, Del.	12
72	Market St. Bridge (Sub)		Dravo Contracting Company, Pittsburgh	
72A	Market St. Bridge (Sup)		Bethlehem Steel Co., Philadelphia, Pa.	
CK33	Thru Farmington	1.33	Old Line Construction Co., Chestertown	15
CK31	Rising Sun-Lebanon	1.25	George & Lynch, Dover	15
62	White Oak Road	1.50	George & Lynch, Dover	12
CK34	Smyrna-Wendall's Cor.	1.90	George & Lynch, Dover	15
65	Kitts Hammock Road	3.10	Smyrna Concrete Prod. Co., Smyrna	12
CK26	Canterbury-Magnolia	5.13	George and Lynch, Dover	15
69	Harrington-Masten's Cor. & Big Ash-Warrens School	5.78	Field, Barker & Underwood, Phila., Pa.	12
71	Cheswold-Smyrna (Wdng.)	4.84	F. W. Lovett, Newark, Del.	4
53B	Broadkill Bridge, (Sup)		Al S. Fox, Dayton, Ohio	
CS49	Gumboro-Maryland Line	3.35	P. D. Phillips, Salisbury, Md.	14
63	Laurel Road-Gum's "X" Rds.	2.32	Old Line Const. Co., Chestertown	12
CS50	Concord-Hardscrabble	4.97	Highway Engr. & Cons. Co., Selbyville	14
CS51	Delmar toward Columbia	3.91	Old Line Constr. Co., Chestertown	15
CS52	Seaford Cutoff ....	.87	Highway Engr. & Constr. Co., Selbyville	15
CS48	Greenwood-Owens	3.27	Highway Engr. & Constr. Co., Selbyville	14
CS53	Bay Shore Lewes ....	.50	W. W. Truitt, Lincoln City, Del.	16
68	Cedar Neck Sch. toward MHfd.	2.10	Highway Engr. & Constr. Co., Selbyville	12
CS54	Harbeson-Indian Mission	4.71	Highway Engr. & Constr. Co., Selbyville	14
CS55	Selbyville-Williamsville	4.20	Highway Engr. & Constr. Co., Selbyville	14
60	Collins Mills Timber Bridge		Sussex Construction Co.	
CS59	Greenwood-Adamsville	4.28	Wm. W. Truitt, Lincoln City, Del.	15
74	Adamsville-Hickman	2.82	Wm. W. Truitt, Lincoln City, Del.	15

MAINTENANCE A road properly cared for never wears out. On this principle the Department has organized its maintenance forces, with the intent that the improved roads shall serve until paid for and longer.

The work as now carried on is performed by crews, each with a foreman and assistants who serve directly under a maintenance engineer. Nineteen crews were engaged during the year, and the duties in addition to the necessary repairs to the concrete pavement, shoulders, ditches and culverts, included the frequent mowing and brambling of rights of way, the prompt removal of snow, erection and repair of direction and warning signs, the planting and watering of 1000 trees, and the semi-monthly collection of refuse scattered along the roadsides. In performing the last mentioned service, the collection of paper, lunch boxes, melon rinds, old tires, tin cans, etc., we estimated to have spent during the year \$1,500.00. This contemptible abuse of public roadsides by "litter pests" should be prohibited by law—the sooner the better.

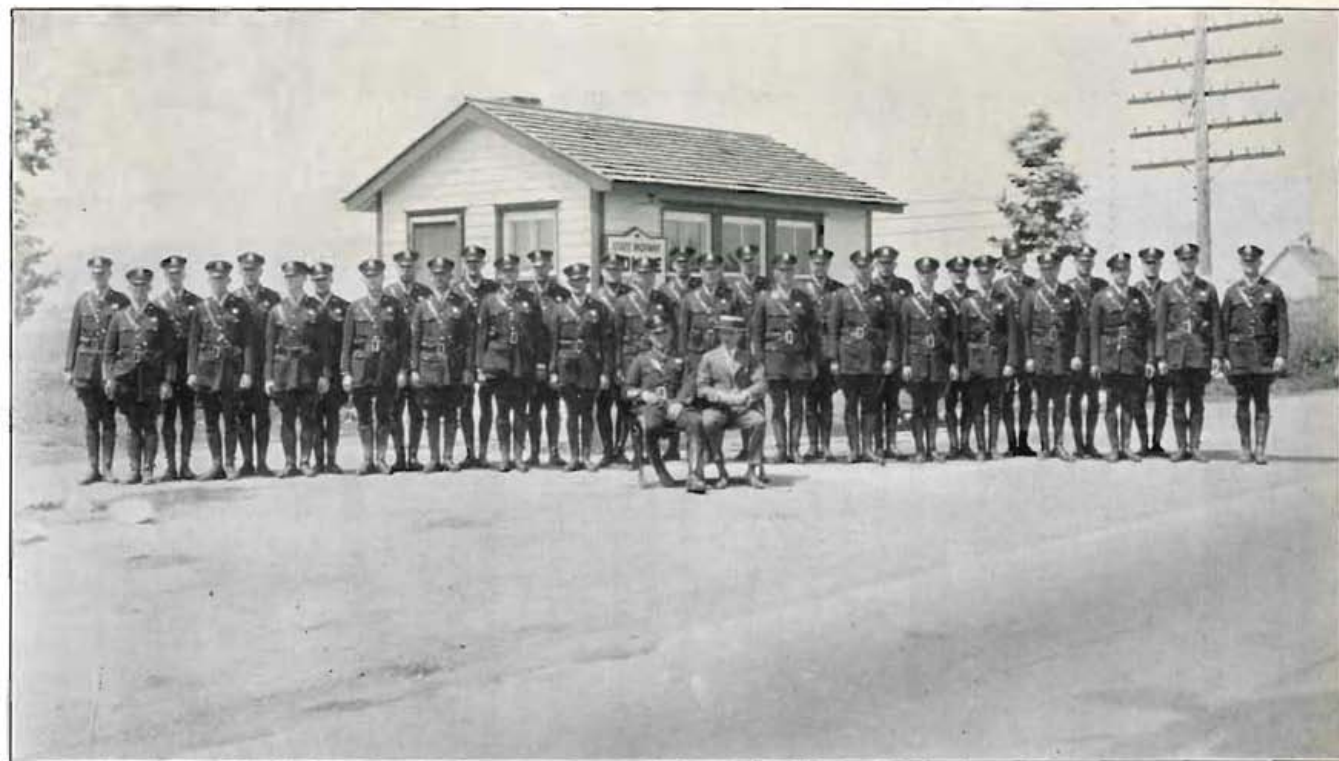
In accordance with plans made early in the year 1000 young trees were planted along different highways—the number being equally distributed among the counties. The stock selected included, Plane, Red Oak and Sugar Maples.

Owing to the scope and magnitude of the work involved in the maintenance of 504 miles of highways, it is gratifying to be able to report that the average cost per mile for the year does not exceed \$295.00 and that this denotes a saving in the 1925 cost of \$12.00 per mile.

HIGHWAY POLICE The Department's police have been actively engaged during the year and their work reflects credit to the individual members. By voluntary resignations the service lost 3 experienced men, and since, the force has operated with 32 men in the field. Four stations giving 24-hour service and a fifth open 16 hours each day, have been maintained.

During the year the men patrolled 432,221 miles of highways and were on duty for a total of 148,252 hours. They issued 3474 reprimands, accepted 1126 special assignments, and made 1748 arrests, for the following violations:

Reckless driving	467
No operator's license	152



STATE HIGHWAY POLICE FORCE AT STATION NO. 2, STATE ROAD

Improper tags	133
Unregistered cars	104
Overloaded trucks	60
Leaving accident without complying with the law	18
Defective brakes	12
Failing to stop at cross roads	14
Horse-drawn vehicle no lights	5
Bicycle no lights	3
Throwing glass on highway	2
No photo on paid driver's license	1
Parking on the concrete	1
Operating under the influence of liquor	213
No mirror	110
Passing vehicles on the right	97
Improper lights	26
Operating car without consent of the owner....	18
Operating after license had been revoked	7
No title	4
No public permit	4
Having stolen car in possession	3
Parking on the highway no lights	1
No weight on the side of truck	1
Improper number on motor	1
Drunk	61
Assault and battery	29
Held as a witness	15
Carrying concealed a deadly weapon	12
Manslaughter	8
Desertion	5
Murder	5
Violating gas tax law	4
Non-support	3
Mis-statement	3
Manufacturing liquor	2
Breach of peace	2
Larceny	38
Transporting alcohol	16
Illegal possession of whisky	14
Disorderly conduct	10
Possession of stolen goods	8

Murderous assault	7
Trespassing	5
Breaking and entering	5
Making threats	4
Assault	3
Gambling	3
Selling liquor	2
Issuing worthless checks	2
Possession of drugs	2
Cruelty to dumb animals	2
Felonious assault	1
Keeping gambling device	1
Accessory to crime	1
Rape	1
Deserting army	1
Defacing property	1
Defrauding	1
Vagrancy	1
Incorrigible	2
Attempt at arson	2
Highway robbery	1
Insane	1
Sodomy	1
Resisting arrest	1
Interfering with an officer	1
Contempt of court	1
Common nuisance	1
Obtaining money under false pretenses	1

One of the more important services the police render is guarding against overloaded trucks on the highways. Their vigilance during the year resulted in 18,294 trucks being weighed. The protection thus given the highways and the saving in maintenance is inestimable.

A statement of expenses for the operation of the State Highway Police Force from January 1st to December 1st shows an expenditure of \$80,123.06; in the same period there has been received from fines \$37,577.00. These figures permit of estimating that the net cost to the state is \$117.17 per month for the services of each of its police.

The following figures show the different items of expenses incurred by the force from January 1st to December 1st, 1926.

Administration	\$2,557.46
New Motors	10,943.30
Salaries of uniformed officers	47,968.66
Travelling and subsistence expenses of uniformed officers	147.62
Motorcycle Maintenance and Repairs	4,120.06
Uniforms and Equipment	2,053.91
Telephone and Telegraph	1,354.78
Light, Heat and Water	538.67
Insurance	425.86
Buildings	1,082.12
Furniture and Fixtures in Stations	115.39
Printing, Stationery and Supplies	277.60
Shop Expense	2,757.29
Operation	4,818.49
Examination of Intoxicated Drivers	176.00
Accidents to uniformed officers	547.95
Storage for police cars	40.00
Sundries	197.90

\$80,123.06

Comprehensive and accurate records of all highway accidents occurring in the state outside of the City of Wilmington have been kept. A tabulation of these, totalling 600, in which 56 persons were killed, 372 injured and property damage done, amounting to \$105,062.00, is submitted:

Recklessness	134
Operating while under the influence of liquor..	52
Skidding	37
Passing without proper clearance	26
Loss of control	21
Glaring headlights	14
Stopped without giving warning	8
Horse-drawn vehicle no lights	7
Bad brakes	6
Parking on highway	4
Defective steering gear	4



ONE OF THE MANY ACCOMPLISHMENTS OF THE STATE
HIGHWAY POLICE



HEAVY DUTY TRAILER OWNED BY THE DEPARTMENT AND USED
TO PROTECT HIGHWAYS FROM HEAVY LOADS

Fog	3
Obstructed view	3
Turning out without giving warning	2
Horse loose on highway	1
Bicycle no lights	1
No tail light (auto)	1
Carelessness	102
Inattention	42
Failing to stop at Cross Roads	34
Jay walking	22
Operating while asleep	14
Inexperienced operator	9
Confusion	8
Driving too close	7
Ran off concrete	7
Tire (blow out)	6
Parking no lights	6
Pedestrian (intoxicated)	4
Obstruction on highway	4
Misjudgment	3
Motor vehicle no lights	2
Frightened horse	2
Motorcycle no lights	1
Falling limb of tree	1
Not stated	2

CLASSIFICATIONS

Fatalities	{	Motor Vehieles	18
		Railroad Crossings	21
		Pedestrians	16
		Street Car Crossings	
Injured	{	Slight	281
		Serious	56
Pedestrians	{	Slight	24
		Serious	11
Condition of Highway	{	Dry	427
		Wet	169
		Obstruction	4

Location	{	Tangent	419
		Intersection	131
		Railroad Crossing	19
		Street Car Crossing	4
		Curve	27

NUMBER OF ACCIDENTS

	Total	Fatal	Non-fatal
Sunday	135	7	128
Monday	76	4	72
Tuesday	60	5	55
Wednesday	76	6	70
Thursday	56	1	55
Friday	74	6	68
Saturday	123	11	112
	<hr/> 600	<hr/> 40	<hr/> 560
Rain	128	8	120
Fog	17	1	16
Clear	419	28	391
Snow	6	00	6
Cloudy	30	3	27
	<hr/> 600	<hr/> 40	<hr/> 560
Daylight	311	20	291
Darkness	289	20	269
	<hr/> 600	<hr/> 40	<hr/> 560
12 to 1 A. M.	29	3	26
1 to 6 A. M.	48	1	47
6 to 7 A. M.	11	1	10
7 to 8 A. M.	10	0	10
8 to 9 A. M.	13	1	12
9 to 10 A. M.	16	2	14
10 to 11 A. M.	29	0	29
11 to 12 A. M.	27	0	27
12 to 1 P. M.	16	2	14
1 to 2 P. M.	19	1	18
2 to 3 P. M.	23	1	22
3 to 4 P. M.	32	3	29
4 to 5 P. M.	56	5	51
5 to 6 P. M.	37	1	36
6 to 7 P. M.	50	4	46
7 to 8 P. M.	51	6	45
8 to 9 P. M.	41	2	39
9 to 10 P. M.	39	2	37
10 to 11 P. M.	31	2	29
11 to 12 P. M.	22	3	19
	<hr/> 600	<hr/> 40	<hr/> 560

RAILROAD-HIGHWAY GRADE CROSSINGS The appalling loss of life that has occurred in the state during the year at grade crossings has rightfully aroused our citizens to a vivid realization of the potential danger every crossing of the kind provides, and invoked the demand that every effort be put forth by the state and railroads, to guard and protect all crossings of the kind in a way and to a degree consistent with good judgment and economic practice, that the lives of the motoring public may hereafter be saved from the hazards of the source that now exist.

While in no way detracting from the seriousness of the situation, it is gratifying to this Department to be able to report that of the distressing deaths during the year occasioned in railroad accidents, none of the lives were lost at grade crossings in the State Highway system. This in part results from the protection built by the state and the railroads around the most dangerous crossings at the time the improved highways were constructed.

Although seemingly insignificant, when compared with the total number of grade crossings in use, the Department reports, through the co-operation of the Pennsylvania Railroad, the elimination of two crossings this year, by a relocation in each case of the highway.

A tabulation is included, of the 63 state highway grade crossings that now exist, showing the number protected and the protection provided:

Unprotected	23	} 63	
Protected	40		
Gates			1
Watchmen			28
Automatic Interflash Electric Signals			4
Interflash Gas Signals			6
Bells			1
			—
Protected			40



THE GRADE CROSSING PROBLEM



GRADE CROSSING ELIMINATION AT BEAR STATION
NEW CASTLE COUNTY, OLD CROSSING AT RIGHT

FUNDS FOR NEW WORK On page 50 there will be found a copy of the Department's 1927 certified budget which was presented to you by the Secretary at the time fixed by statute.

With the excess of revenue as shown: i. e. \$145,680.00, the Department will have ample resources for the work needed to be done in 1927.

ADMINISTRATION AND LEGAL With no diminution of the constant efforts, employed in the dispatch of the Department's affairs to eliminate possible extravagance, the cost of administration for the year, is found to be under 2%.

For new work valued at \$2,429,233 surveys were made, plans prepared and inspection furnished for \$88,357.00.

FINANCIAL STATEMENTS The extent of business transacted by the Department during the year is sufficient to warrant that this report include a comprehensive statement of receipts and expenditures for the period, and following will be found a condensed statement of Income and Disbursements from January 1, 1926, to December 1, 1926.

INCOME

Balance from 1925	\$430,916.63
Federal Aid Contracts	241,263.02
Motor Vehicle Fees	771,636.00
Gasoline Tax	360,043.43
\$500,000.00 Bond Issue, Proceeds	497,195.00
Accrued Interest	1,777.80
Traffic Police Fines	37,577.00
New Castle County, State Aid "Construction" ..	165,584.08
Kent County, State Aid "Construction"	207,591.08
Sussex County, State Aid "Construction"	298,135.41
Wilmington & Phila. Traction Co., Reimbursement	3,341.44
Plant and Equipment, Rental	3,081.44
Right of Way, Rental	230.24
Maintenance, Labor and Materials	179.70
Reimbursements (pouring center line, Towns, Telephone, Permit Fees, etc.)	9,701.89
Miscellaneous, Sales, War Surplus, etc.	3,064.99

Returned Premium Insurance	1,776.35
Compensation Insurance	19.26

\$3,033,114.60

EXPENDITURES

Administration and Legal	\$31,694.82
Preliminary Survey and Plans	6,692.21
Engineering General	7,186.52
Engineering Construction	13,265.02
Engineering Maintenance	2,563.70
Stock Room	1,445.62
Construction	384,629.74
Maintenance	98,401.60
Plant and Equipment	26,351.68
Laboratory	1,578.99
Automobiles	28,375.18
Traffic Police	80,685.18
State Aid—New Castle	553,633.66
State Aid—Kent	403,077.64
State Aid—Sussex	999,817.17
Interest and Sinking Fund	189,210.00

\$2,828,609.51

Available Balance, December 1, 1926\$204,505.09

AUTOMOBILE STATISTICS For reference and general information, a classification of the number, kind and location of all automobiles registered in Delaware 1925, has been prepared and is included in this report. It is estimated that the 1926 registration will exceed that shown for last year by 12%:

AUTOMOBILES REGISTERED IN 1925

	Wilmington	Rural New Castle Co.	Kent County	Sussex County	Foreign	Totals
Automobiles	10,585	7,100	5,147	7,950	405	32,268
Trucks	2,227	1,591	1,371	1,482	244	7,116
Dealers	238	117	143	151	...	678
Motorcycles	161	74	51	26	...	313
Totals	13,211	8,882	6,712	9,609	649	40,405

PER CENT OF TOTAL IN EACH DIVISION

Wilmington	13,211	32.7 %
Rural New Castle	8,882	22.0 %
Kent County	7,383	18.4 %
Sussex County	10,280	25.5 %
Foreign	649	1.4 %
		100.0 %

REGISTRATION PER CAPITA

	Cars Registered	Population Estmd.	Persons Per Car
Wilmington	13,211	110,000	8.3
Rural New Castle Co.	8,882	38,100	4.3
Kent County	7,383	31,100	4.2
Sussex County	10,280	43,700	4.2
Foreign	649	.....	...
Approx. Average			5.6

AUTOMOBILES 1925

Make	Number	Make	Number
Abbott	1	Earl	2
Allen	10	Elcar	8
American	14	Elgin	10
Anderson	10	Emerson	1
Apperson	6	Empire	4
Auburn	30	Essex	578
Baker	1	Fiat	1
Bell	1	Flint	24
Bently	2	Ford	17,394
Briggs-Stratton	1	Franklin	253
Briscoe	53	Gardner	11
Buick	1,906	General	1
Bush	2	Grant	9
Cadillac	397	Gray	22
Case	21	Haines	113
Chalmers	104	Hanley-Knight	1
Champion	4	Hanson	1
Chandler	178	Hatfield	2
Chevrolet	2,850	H. C. J.	3
Chrysler	66	Hollier	0
Cleveland	78	Holmes	0
Cole	29	Hudson	681
Columbia	8	Hupmobile	223
Crawford	1	Imperial	1
Crow Elcart	3	Jackson	2
Danics	1	Jeffries	3
Davis	7	Jewett	114
Detroit	4	Jordan	45
Dixie	3	King	1
Dodge	1,500	Kissel	19
Dort	95	Krit	3
Du Pont	17		
Durant	166		



HIGH-SPEED TRUCK PLOW. EFFICIENT IN LIGHT SNOW



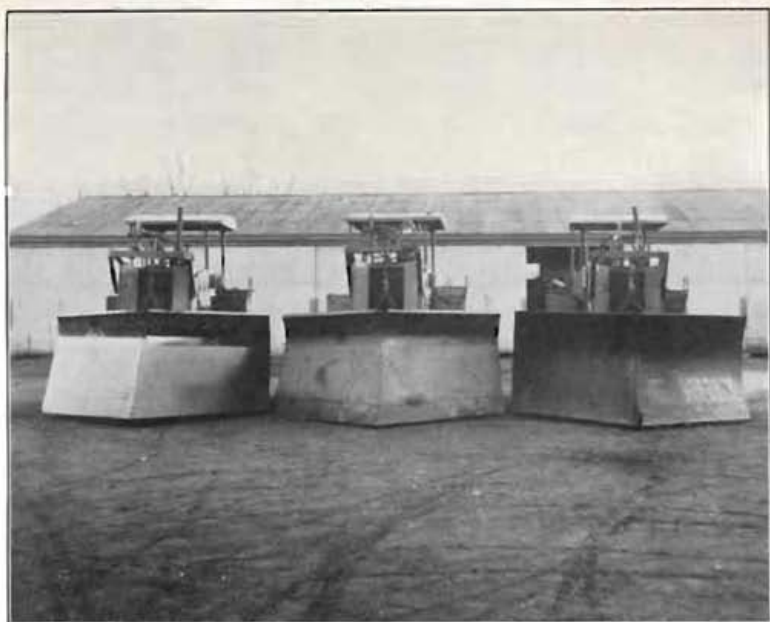
WHEN SNOW IS BADLY DRIFTED CATERPILLAR TRACTORS
BECOME NECESSARY

Make	Number	Make	Number
Lexington	49	Rco	67
Liberty	14	Reverse	2
Lincoln	24	Rickenbacker	14
Loconobile	10	Roamer	5
Lozier	2	Rolls-Royce	2
		Rollin	1
Maxwell	451		
Maibohm	1	Saxon	33
Marinon	53	Sayers-Scoville	1
Mercer	3	Scripps-Booth	50
Metz	1	S. G. V.	1
Milbourne	1	Shaw	9
Minerva	3	Standard	2
Mitchell	21	Stanley	3
Moline Knight	0	Star	413
Moon	42	Stearns-Knight	18
Meur	2	Stevens	6
		Studebaker	935
Nash	356	Stutz	15
National	11	Sun	2
Norman	0		
Norwalk	3	Templar	13
		Trumbull	1
Oakland	378		
Oldsmobile	296	Vaux Hall	1
Overland	984	Velie	28
Packard	293	Wescott	2
Paige	124	White	2
Pathfinder	1	Willys	3
Patterson	3	Willys-Knight	197
Peerless	76	Willys-Overland	19
Piedmont	1	Wills St. Claire	18
Pierce-Arrow	59	Wing Special	2
Pilot	1	Winton	3
Pullman	2	Not listed	23
Rausch Lange	3		
Regal	5	Total	32,268

Note:

Trucks	7,146	Classification on file
Motorecycles	336	Classification on file

TRAFFIC CENSUS As a matter of record and of some interest, traffic counts taken in 1925 and 1926 are recorded below. That the figures may have a value, it is necessary to explain that the census were taken between the hours of 12 noon and midnight at the time each year when 4th of July and Labor Day traffic was returning home. That a much greater difference does not exist in the number of cars in 1925 and 1926 is largely due to weather conditions. Ideal weather prevailed each day of the 1925 count and exactly the reverse occurred in 1926.



CATERPILLAR TRACTORS EQUIPPED FOR SNOW REMOVAL



IN SPITE OF TRUCK AND TRACTOR PLOWS AT TIMES
THE SNOW SHOVEL IS SUPREME

	Decoration Day		4th of July		Labor Day	
	1925	1926	1925	1926	1925	1926
State Road Sta.	N. T.*	9101	9221	8816	8900	9399
Dover	N. T.	4223	N. T.	4988	N. T.	4466

*Census not taken.

GASOLINE TAX It was estimated December 1st that the total receipts for the year from the 2-cent tax on gasoline would reach \$365,000, or an average of \$1,000 a day. This denotes an average daily sale of 50,000 gallons of gasoline in the State and offers the means of estimating conservatively that the average daily distance traveled by Delaware motorists is five hundred thousand miles.

The State has received this year in taxes from motorists approximately \$1,150,000. Receipts from registration fees show an increase of 14% over last year, and a corresponding increase in the gas tax is indicated.

ROADS I recommend for your consideration when **PETITIONED** lecting additional highways to be included in the State system, the following roads, nearly all of which, the Department has been petitioned to improve:

NEW CASTLE COUNTY

Philadelphia Pike, Naamans-Wilmington (Widen)
 Elkton Highway, State Road Station, Glasgow (Widen)
 Du Pont Boulevard, State Road Station, Wilmington (Widen)
 Du Pont Road-Lancaster Pike to Kennett Pike
 Adam's Dam-Perry Tavern
 Newport and Gap Pike
 Limestone Road (Lincoln Highway-Stanton)
 Relocation Lincoln Highway through Marshallton ¼ Mile
 Thompson Station-Milford Cross Roads
 Newport Bridge with road connections and consideration of railroad grade crossing elimination
 Bear-Corbit
 Christiana-Hare's Corner
 New London-Newark
 Delaware City-Port Penn
 Old Baltimore Pike (Cooch-Maryland Line)
 Odessa-Middletown (widen by concrete shoulders)
 Pleasant Valley extension to Lincoln Highway at Maryland Line
 Dexter's Corner-Delaney

KENT COUNTY

Du Pont Boulevard, Cheswold-Dover (Widen)
 Du Pont Boulevard, Blackbird-Armstrong Corner (Widen)
 Tubmill to Hering's Corner
 Road east of Dover
 Governor's Avenue, Dover
 North Entrance to Smyrna

Wyoming-Ahn's House-Hazletville Road
 Woodside to connect with the Willow Grove-Petersburg Road
 Leipsic-Dover
 Dover Water Works to Du Pont Boulevard
 Leipsic-Magnolia via Little Creek and Barker's Landing
 Mahon Lighthouse Road
 Burnitts-Masten Corner, west of Felton
 Wendall's Corner-Woodland Beach

SUSSEX COUNTY

Du Pont Boulevard, Milford-Selbyville (Widen)
 Lowes Cross Roads thru Gumboro to Selbyville
 Milford-Shawnee Road-Greenwood
 U. S. Compass Station-Bethany Beach to Ocean View State Highway
 Ellendale-Milton
 Milford-Five Points Road to Slaughter Beach
 Roxana-Millville Road to Bayard
 Bacon's thru Whitesville to Pittsville concrete road
 Road thru Cedar Neck (Little Creek Hundred)
 Shafer's Corner-Frankford, or Omar
 Bridgeville east via Two Bridges or Robbins Cross Roads
 Bridgeville east via Sunny Side School
 Greenwood-Ellendale
 Dublin Hill-Scott's Store-Maryland Line
 Ellendale towards Bridgeville
 Houston via Williamsville to Kent-Sussex Line
 Lincoln City-Milford-Brick Granary Road
 Frankford-Roxana
 Bethel-Maryland Line at Sharptown
 Green's Mill-Bowden Corner
 Roxana-Sound Road
 Connect Marshy Hope Road with main State Highway N. of Green-
 wood
 Greenwood-Vernon via Andrews ville
 Indian Mission School-Angola
 Harmon's School-Midway
 Columbia-Laurel, Sharptown State Highway
 Flowers Station-State Line
 Frankford-Millsboro-Gumboro State Highway

COUNTY HIGHWAY BONDS Shall county highway bonds be taken over by the State and all outstanding road obligations of a financial character be assumed by the State as a whole, or shall the Counties continue to meet their obligations for highways, as they come due? This question has been proposed during the year. Having perhaps several, and at least one, significant aspect, it was seized upon and in part answered, by both political parties, when they made it a plank in their respective platforms, advocating at the time such a change. The transfer from three treasuries to one, of such sizeable obligations, as these will be found to be, is a momentous question which the General Assembly will possibly be called upon to solve, and since this Department is

in possession of certain data, pertinent to the question, it is herein set forth,—its value may be individually judged.

The counties today have outstanding obligations for roads amounting in all to \$8,835,000. The larger part, or \$6,800,000 of this sum has been authorized and spent for the construction of state aid roads—the remainder for the improvement of county roads by county forces. Any attempt by the State Highway Department to explain the purpose and benefit resulting from the bond issues handled exclusively by the county officials, would not only be presumptuous but probably inaccurate, wherefore it is proposed herein to treat only of the issues for state aid roads, by the presentation of certain facts.

The Counties' money could only be spent when matched dollar for dollar with State funds, so that one-half the cost of the improved County roads has already been paid for by the State.

The counties shared, equal authority with the State, when selecting roads for State aid construction. A guarantee that only the roads they wanted would be built.

All improved county roads are maintained at the State's expense.

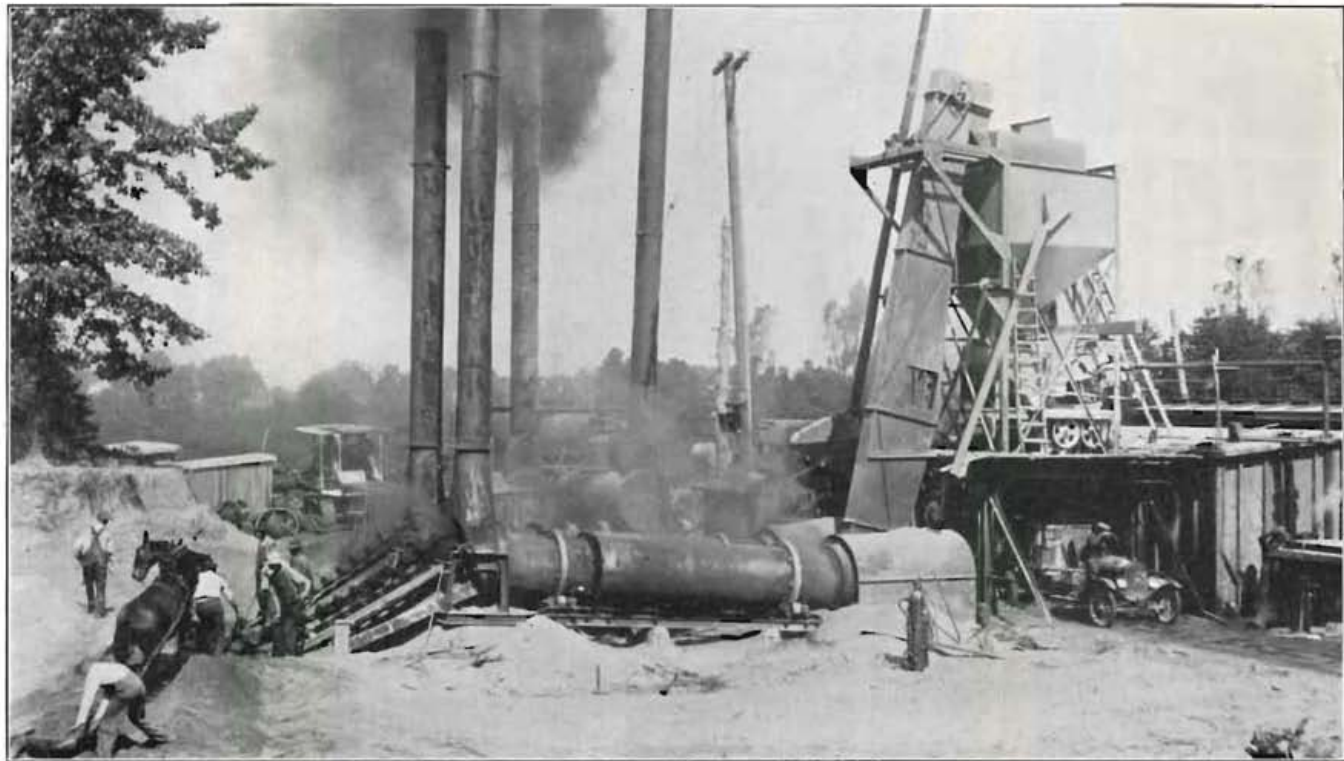
State funds for highway construction and maintenance are supported and derived entirely from taxes paid by motorists.

It follows therefore that our citizens who own and use automobiles are not only NOW paying for one-half the cost of the improved county roads, but also are paying ALL the cost of maintaining these roads.

A tabulation of county road and highway bonds outstanding, of which the issues are all serial.

	State Aid Authorized	County
New Castle County.....	\$1,700,000	\$1,750,000
Kent County	2,100,000	200,000
Sussex County	3,000,000	16,000

Tables indicating amounts maturing in each county annually, for the period of the issues.



SAND-ASPHALT MIXING PLANT NEAR BLADES USED IN THE CONSTRUCTION OF THE
CONCORD-HARDSCRABBLE HIGHWAY

Tables by counties of annual rate of assessment necessary to retire bonds, computed on the 1926 assessed valuation in each county.

Note: The pre-supposed increase in the assessed valuation from year to year would cause a decrease in the rates as shown.

Assuming the State obligated itself to meet the interest and retire these bonds, and then undertook to raise the funds needed, from the motorists, through registration fees and the gas tax, the tax on gasoline would have to be increased 3 cents per gallon, or the registration fees as now paid would require an average increase of \$11.00.

Estimated on the 1925 automobile registrations, the extra assessment necessary to retire the counties State aid road bonds, if financed by a tax on gasoline or an increase in the registration fees, would be divided between the City of Wilmington and the three counties in the following way:

	S. A. R. Bonds Authorized	S. A. R. Bonds Outstanding	Proptnl. Annual Assessment	Miles S.A.R.
Wilmington			\$158,321	0
Rural New Castle Co.	\$1,700,000	\$1,600,000	106,702	80
Kent County	2,100,000	2,100,000	89,213	125
Sussex County	3,000,000	2,800,000	123,080	167

The above table would seem to require no explanation, and the one conclusion to be offered here, from a perusal of the outline, is the apparent inequity of the State obligating itself to pay the county's highway bond issues, if the burden is to fall upon the motorists.

NEWORT AND ELSMERE It is difficult to recommend
GRADE CROSSINGS any work requiring the expenditure of State funds that would have more merit than the elimination of the railroad-highway grade crossings in Newport and Elsmere.

In the town of Newport the New Castle-Marshallton State highway crosses at grade the main line tracks of the Philadelphia Washington Division of the Pennsylvania Railroad. The eastern approach to the crossing is on a 6% grade, and the view of approaching southbound trains is entirely blocked. The view to the south of approaching northbound trains is but

KENT COUNTY S

Date Authorized	Amount of Issue	Kind	Designation	Date of Maturity	Int. Rate	1927
1920	\$1,000,000	Def. Serial	Kent. Co. State Aid Bonds ..	1926-1950	4½%	\$20,000
1923	600,000	Def. Serial	Kent. Co. State Aid Bonds ..	1926-1950	4½%	20,000
1925	500,000	Def. Serial	Kent. Co. State Aid Bonds ..	1928-1952	4½%	
	<u>\$2,100,000</u>					
			Total Amount Maturing			\$40,000
			Total Amount Outstanding			\$2,060,000
			Total Interest Payments			\$92,700
Tax Rate to Pay Interest Due Based on 1926 Assessment of \$30,000,000.00.....						0.309
Tax Rate to pay maturing bonds based on 1926 Assessment of \$30,000,000.00.....						.133
Total Tax Rate to Pay Interest and Bonds due Based on 1926 Assessment of \$30,000,000.00						0.442
Total Amounts Matured to Date						\$80,000

SUSSEX COUNTY I

Date Authorized	Amount of Issue	Kind	Designation	Date of Maturity	Int. Rate	1927
1917	\$1,000,000	Def. Serial	Sussex Co. Hwy. Improve't	1927-1906	4½%	\$25,000
1921	1,000,000	Def. Serial	Sussex Co. Hwy. Improve't	1931-1970	5%	
1925	1,000,000	Def. Serial	Sussex Co. Hwy. Improve't	1926-1965	4½%	25,000
	<u>\$3,000,000</u>					
			Total Amount Maturing			\$50,000
			Total Amount Outstanding			\$2,925,000
			Total Amount Matured			\$75,000
			Interest Payments			\$138,875
Tax Rate for \$100 to pay maturing bonds based on 1926 Assessment of \$32,000,000.00.....						0.156
Tax Rate for \$100 to pay interest based on 1926 Assessment of \$32,000,000.00.....						0.434
Total Tax Rate to Redeem Bonds and Pay Interest						0.590
Total Interest and Bond Payments						\$188,875

NEW CASTLE COUNT

Date Authorized	Amount of Issue	Kind	Designation	Date of Maturity	Int. Rate	1927
1919	\$140,000	Def. Serial	Hwy. Impr. No. 7	1923-1933	5½%	\$20,000
1921	485,000	Def. Serial	State Aid, No. 8	1926-1936	4½%	15,000
1923	500,000	Def. Serial	State Aid, No. 9	1928-1937	4½%	
1925	500,000	Def. Serial	Hwy. Impr., No. 10	1930-1939	4½%	
	<u>\$1,625,000</u>					
			Total Amount Maturing			\$35,000
			Total Amount Outstanding			\$1,625,000
			Total Amount Int. Payments.....			\$74,525
Tax Rate Necessary to Pay Interest Based on 1926 Assessment of \$180,000,000.00.....						0.039
Tax Rate Necessary to Pay Maturing Bonds						0.018
Tax Rate Necessary to Pay Maturing Bonds and Interest						0.057

STATE AID BOND ISSUES

1928	1929	1930	1931	1932	1933	1934	1935	1936	1937
\$20,000	\$20,000	\$20,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$40,000	\$40,000
20,000	20,000	20,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
\$60,000	\$60,000	\$60,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$85,000	\$85,000
\$2,020,000	\$1,960,000	\$1,900,000	\$1,840,000	\$1,765,000	\$1,690,000	\$1,765,000	\$1,540,000	\$1,465,000	\$1,380,000
\$90,900	\$88,200	\$85,500	\$82,800	\$79,425	\$76,055	\$72,685	\$69,310	\$65,935	\$62,110
0.303	0.294	0.285	0.276	0.265	0.253	0.242	0.231	0.219	0.207
0.20	0.20	0.20	0.25	0.25	0.266	0.266	0.266	0.30	0.316
0.503	0.514	.495	.526	0.515	0.519	0.508	0.497	0.519	0.523
\$140,000	\$200,000	\$260,000	\$335,000	\$410,000	\$485,000	\$560,000	\$635,000	\$720,000	\$805,000

BOND ISSUES, STATE AID

1928	1929	1930	1931	1932	1933	1934	1935	1936	1937
\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
\$50,000	\$50,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000
\$2,875,000	\$2,825,000	\$2,750,000	\$2,675,000	\$2,600,000	\$2,525,000	\$2,450,000	\$2,375,000	\$2,300,000	\$2,225,000
\$125,000	\$175,000	\$250,000	\$325,000	\$400,000	\$475,000	\$550,000	\$625,000	\$700,000	\$775,000
\$136,625	\$134,375	\$132,125	\$128,675	\$125,125	\$121,625	\$118,125	\$114,625	\$111,125	\$107,625
0.156	0.156	0.234	0.234	0.234	0.234	0.234	0.234	0.234	0.234
0.427	0.420	0.413	0.402	0.391	0.380	0.369	0.358	0.347	0.336
0.583	0.576	0.647	0.636	0.625	0.614	0.603	0.592	0.581	0.570
\$136,625	\$184,375	\$207,125	\$203,625	\$200,125	\$196,625	\$193,125	\$189,625	\$186,125	\$182,625

STATE AID BOND ISSUES

1928	1929	1930	1931	1932	1933	1934	1935	1936	1937
20,000	20,000	20,000	\$20,000	\$20,000	\$20,000				
15,000	15,000	15,000	10,000	10,000	15,000	15,000	\$20,000	\$10,000	\$15,000
15,000	15,000	15,000	15,000	15,000	15,000	20,000	20,000	15,000	10,000
		20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
\$50,000	\$50,000	\$70,000	\$65,000	\$65,000	\$70,000	\$55,000	\$60,000	\$45,000	\$45,000
\$1,510,000	\$1,540,000	\$1,490,000	\$1,420,000	\$1,355,000	\$1,290,000	\$1,220,000	\$1,165,000	\$1,105,000	\$1,060,000
\$72,750	\$70,300	\$67,250	\$64,600	62,275	58,250	54,000	\$52,425	\$49,725	\$47,700
0.038	0.037	0.035	0.034	0.033	0.031	0.029	0.032	0.026	0.025
0.026	0.026	0.037	0.034	0.034	0.037	0.029	0.027	0.024	0.024
0.064	0.063	0.072	0.068	0.067	0.068	0.058	0.059	0.050	0.049

little better. Fortunately the crossing is now protected by watchmen and gates, but the extreme hazard at this point can be entirely eliminated only by separating the grade and placing the road below and under the tracks.

In Elsmere the Wilmington-Newark highway, known as the Capitol Trail, crosses at grade 7 tracks in a distance of 550 feet. These roadbeds are the property of the P. & R. and B. & O. railroads and this grade crossing should for ever be done away with, either by a relocation of the highway or an overhead bridge.

I solicit your earnest consideration of the possibility of the State, through the Highway Department undertaking to finance its part of these needed improvements and your consent to make surveys and begin preliminary negotiations with the railroads for the elimination of both crossings.

ROADSIDE BILLBOARDS You will recall that my report for the preceding year carried the suggestion that roadside advertising be taxed and the revenue so derived applied to the maintenance of State highways. I reiterate the recommendation and strongly advocate legislation necessary to accomplish the means.

It must be conceded that the value of the highway sign is derived from the public thoroughfare and not from private property on which it is located and the first obligation should be to the public who own the highway.

The practice in the State of erecting billboards along our improved highways is increasing with startling rapidity. A recent survey of our primary roads gave proof that there has been an increase of 332 of such signs in two years. If an annual tax of \$0.08 per square foot was levied on the signs now erected within 200 feet of the State highways, the revenue derived therefrom would be sufficient to maintain 45 miles of roads for twelve months.

BYPASS MILFORD An improved highway east of Milford to connect the du Pont Boulevard with the Milford-Rehoboth highway, would provide the most popular and effective way of relieving the summer traffic congestion in Milford, that has been reported as generally objectionable.

I suggest that the Chief Engineer be authorized to make surveys and prepare plans and cost estimates for such a road.

ROADSIDE MARKETS Roadside markets which sell other than the owners' own home-grown produce should be required to obtain a merchant's license, and be obliged to conspicuously display it. Such a regulation would serve to advantage the farmer who has fresh home-grown fruits and vegetables for sale, and the consumer, the motorist, who wishes to purchase only produce of the kind.

IMPROVEMENT OF EARTH ROADS The State has now a system of modern hard-surfaced highways comprising 16% of the total road mileage in Delaware. That there will be need to indefinitely enlarge this system each year, is unlikely. Wherefore it seems logical to suggest that the State Highway Department turn its attention to the improvement and care of earth roads. I particularly wish to stress however that the success of the venture would largely, if not altogether, depend upon the method employed for State control of these roads. A radical over-night change that would strip the counties of every vestige of authority in road matters, would in turn, tend to strangle State energy and probably produce an unsatisfactory situation. If the State is to do the work, it should be planned and undertaken in a systematic manner, such as has attended the building of the improved State highways. Allow the Highway Department to select each year as many miles of these unimproved roads as it can efficiently care for and in such a way develop a system of earth roads; the counties to continue to look after the remaining roads in their districts, which would become less of a burden each year as the State enlarged its system.

Such work, if undertaken, should be financed only on the "pay as you go" plan.

WIDEN MAIN HIGHWAYS AND FARNHURST BRIDGE The unprecedented and unforeseen amount of motor traffic attracted to and now using our roads, that has every indication of continuing to increase, requires in the interest of safety and convenience to the motoring public, that several of our main roads be widened. I emphasize the need for this work in certain sections by listing again roads recommended earlier in this report for increased width; they are



DU PONT BOULEVARD NEAR BLACKBIRD SHOWING WIDENING AND NEW CENTER LINE. FOUR FEET
ADDITIONAL CONCRETE PAVEMENT ADDED DURING 1926

Philadelphia Pike
du Pont Boulevard
Elkton highway
du Pont Boulevard
du Pont Boulevard

Naaman's to Wilmington
State Road Station to Wilmington
State Road Station to Glasgow
Selbyville to Milford
Dover to Cheswold

It has been estimated that the volume of traffic passing Farnhurst on the boulevard exceeds that on any other road in the State. The highway bridge over the tracks of the Delaware Division of the Pennsylvania Railroad at that station should be widened in advance of any serious accidents that can easily occur at this crossing, if motorists blinded by the lights of approaching cars collide with the bridge railings, or if forced out of their position on the approaches by "cut-ins," lose control of their machine, break through the guard rails and drop 22 feet to the tracks below. This structure as built by the railroad company in 1902 has a roadway of only 20 feet and is 12 feet narrower than any State bridge on the boulevard between Wilmington and Milford. The work required to widen this crossing could be performed without interrupting traffic and at no great expense; it should be done.

MINIMUM The excessively slow vehicle on a heavily-
SPEED traveled road must be regarded as a serious obstacle to safe driving. It compels vehicles in the rear to "buck" traffic in getting by, and so directly provides the cause for one of the main sources of highway accidents.

Between *certain hours of certain days* on particular sections of the main highways it should be unlawful to operate a car slower than a specified minimum speed. I suggest that the General Assembly be asked to fix such a speed limit for holiday traffic on the main highways.

ASSAWOMAN CANAL Early action should be taken to
BRIDGE replace the vehicular bridge over the Assawoman Canal between Ocean View and Bethany Beach. The existing crossing is antiquated and its location a hazard to motorists. Its approach at either end is an improved State highway with which the bridge as it now stands is acutely out of line. To provide a vehicular crossing at this point is an obligation of the Federal Government and as the War Department is the agency in charge of such work, a strenuous appeal



BRIDGE AND CAUSEWAY CROSSING WAPLES MILL POND—MILFORD-REHOBOTH ROAD

should be made to it to have the existing condtions remedied before fatal accidents occur.

MOTOR VEHICLE LAWS Interstate Motor Busses and Non-Resident Freight Transportation Vehicles should be taxed.

From our record of trucks weighed, it is estimated that 21,453 tons of freight for which the carriers received pay, but the State nothing, were transported over our highways during the year.

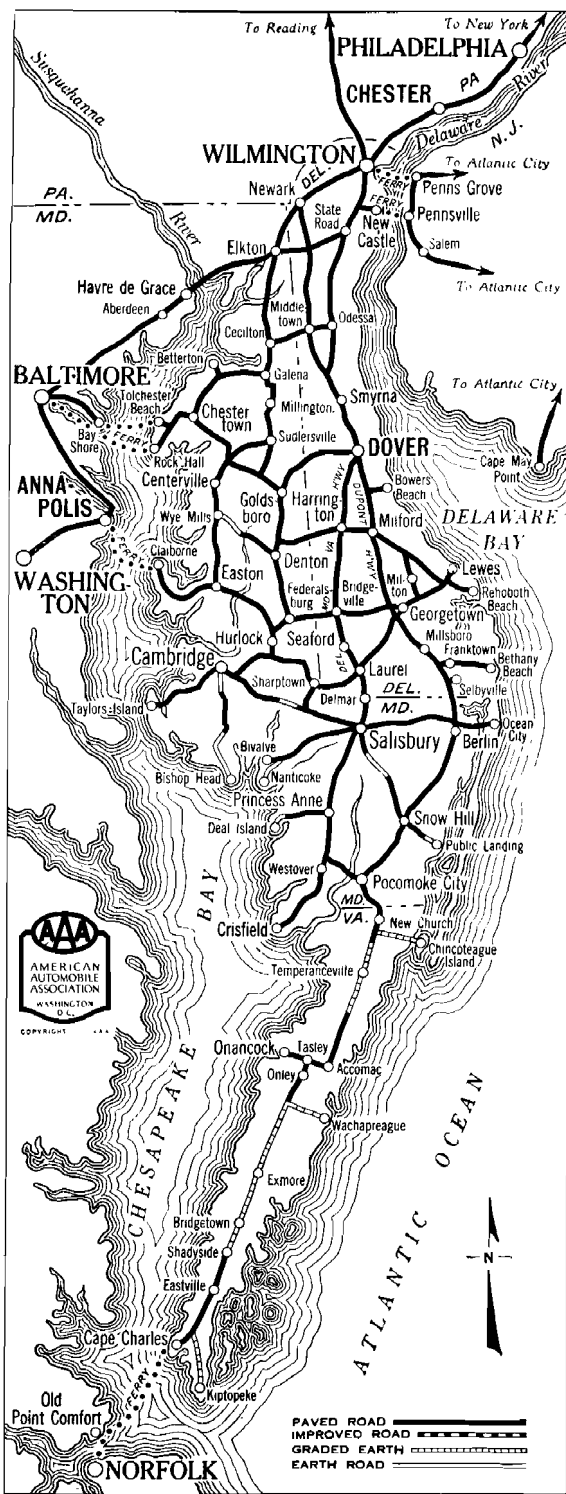
Delaware, as a part of the "Delmarva Peninsula," is geographically so located that non-resident commercial motor traffic headed north to the markets of centres of population, traverses its full length on our main highways, or feed into them from the several lateral roads connecting with the Eastern Shore of Maryland. The State's investment in highways is being extensively commercialized by non-residents at the entire expense of our citizens. The State tax on gasoline collected from these carriers is negligible as compared to the service rendered, and affords insufficient argument or reason for continuing to extend to them the unlimited use of our improved roads, without compensation to the State.

Interstate motor busses using Delaware roads while, in numbers, unobjectionable at this time, should be required to pay a tax to the State commensurate with the service given.

The operation of vehicles of both classes is a business proposition and where non-residents use the Delaware roadways for their own profit, they should contribute to their upkeep.

I suggest that the question and propriety in cancelling reciprocity to trucks from other States, when commercially operated, be submitted to the next General Assembly for their consideration.

PARKED CARS Several serious and one or more fatal accidents have occurred in Delaware on State highways during the year, caused by thoughtless or indifferent drivers who stopped their cars and left them standing in the traffic lane. There are instances of night driving where acts of the kind have been committed and the disabled machines left without lights. Such disregard for the safety of others is little less than criminal.



The suggestion is offered that severe penalties be imposed on persons who park an automobile in the traveled way of a high-speed road, especially at night, for repairs or any other purpose.

SAFETY FACTORS As a means of reducing accidents at cross roads and at railroad crossings, the Highway Department should have the authority necessary to replace corner hedges at such points with open fences, and further, be permitted to arrange for seasonal leasing of field corners at intersections where the owner's rotation of crops requires these corners to be planted in corn, or other vegetation that would dangerously impair the view.

Where arterial highways pass through towns of six to eight thousand population, or less, the control of traffic with the regulations relating thereto, should be vested in the State and be as much a part of its duty as the repairs to the highway itself.

There should be a regulation to require that all rural mail boxes be placed only on the right hand side of the road as fixed by the direction of delivery. Such would eliminate the need of carriers driving back and forth across the road and the consequent danger.

Delaware operators arrested for driving when intoxicated should, in addition to the present punishment prescribed, lose their registration tags, and carry a new set of marked number plates on the machine in which they were arrested, for a period of 12 months.

IDEALS AND AN IDEAL My thirteen years of association with, and my pride and interest in the development of our State's highway system, encourages me to assume the liberty of transgressing long enough to attempt to picture with unrestrained imagination a vision for Delaware of the finest paved road system in the country:

Every mile of road in each county improved.

All poles removed from the public roads and wires placed under ground.

All roads planted in trees and shrubbery.

All highway advertising signs to disappear.

Two-way double track roads for all principal thoroughfares.

Many railroad-highway grade crossings separated and all others protected by automatic lights or gates faultless in their operation.

Elimination of hazardous highway intersections by underpasses.

Deep ditches closed.

Walks for pedestrians along main roads.

Trunk lines to be lighted.

Containers on all roads for waste paper and refuse, and their use made compulsory.

Numerous roadside parks and picnic grounds.

In concluding this report, I wish to thank his Excellency the Governor, and each of the members of the Department for their valued counsel, and the confidence reposed in my administration of the Department's business; also to express my recognition of the most willing and invaluable assistance I have received from all my associates.

Respectfully submitted,

State Highway Department,

C. D. BUCK,
Chief Engineer.